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Department of the Treasury
Internal Revenue Service
Office of Chief Counsel
Reg-117631-23

Subject: *Response to Request for Comments to Reg-117631-23* - Section 45V Credit for Production of Clean Hydrogen, Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property

To Whom It May Concern,

TC Energy Development Holdings Inc. (together with its affiliates, TC Energy) and MPC Investment LLC (MPC) (collectively the “Project Team”) form the core of Prairie Horizon Energy Solutions LLC (PHES). TC Energy and MPC are collaborating within PHES to support development of a potential low-carbon hydrogen and ammonia production facility in Stark County, North Dakota. As a member of the Heartland Hydrogen Hub (HH2H) currently under negotiation for a funding award by the U.S. Department of Energy (DOE), PHES is aligned with the objective of HH2H to decarbonize greenhouse gas (GHG)-emitting processes across the region of Minnesota, Montana, North Dakota, Wisconsin, and South Dakota through the use of clean hydrogen.

Given the importance of the Section 45V Clean Hydrogen Production Credit to the financial performance of projects, and enabling meaningful progress on the path to the DOE’s Energy Earthshots Initiative to reduce the cost of clean hydrogen by 80% to \$1 per kilogram in one decade, the Project Team, in the context of the development project being considered, is providing the following commentary in response to the proposed regulations governing the Section 45V Clean Hydrogen Production Credit.

Electrolysis-Based H₂

On Deliverability for Electrolysis-based H₂

- a. *The Project Team views the deliverability standard for renewable energy certificates (REC) or energy attribute certificates (EAC) applicability as potentially counterproductive to the interregional transmission enhancement goals of the National Transmission Needs Study (NTNS)¹. By requiring generation within the same region as consumption, paired with the incrementality requirements, this may create increased congestion as opposed to creating opportunity for a new-build generation project to be leveraged from outside the region where it could potentially be constructed more efficiently.*

¹ U.S. Department of Energy, National Transmission Needs Study, October 2023

- b. *With respect to the NTNS Regions, and their relationship to the existing commercial marketplace, is each U.S. Balancing Authority linked to a NTNS Region? This is of particular interest around NTNS Region boundaries that do not precisely overlap with the majority overlapping U.S. Balancing Authority. The 45VH2 GREET User Manual states these two boundary areas will be linked, and the Project Team requests this be formally written into updated Internal Revenue Service Guidance.*

On Incrementality and Temporal Matching for Electrolysis-based H₂:

- a. *With respect to the 36-month reference period guidelines, referred to as the Incrementality requirement, the Project Team views the structure as unnecessarily restrictive and generative of additional owners' risk at the time of final investment decision. The presently proposed structure could lead to a viable scenario in which a final investment decision must be made without complete awareness of eligible renewable generation projects committed to the project. Such a risk increases with the duration of construction on any given project. The preferred structure would reference Electrolyzer Start of Construction as opposed to Electrolyzer in-service date when defining the starting point of look-back, and would allow project teams to identify and secure EAC procurement and renewable generation partnership opportunities earlier in the project timeline.*
- b. *Unless H₂ producers intend to self-develop or form renewable development partnerships – both paths made increasingly difficult when combined with the proposed temporal-matching requirements – the primary resource to meet these incrementality criteria is expected to be the electrical utility serving the project. Quantification of the tariff impact for such a utility taking on the burden of renewable power RFPs and the associated temporal-matching considerations is forthcoming through consultation with partner utilities.*

Suggested Alternatives for Electrolysis-based H₂:

- a. *Establishment of a higher threshold than 5% from existing generation sources, ideally based on logic tied to circumstances such as avoided retirement, expected curtailment rates, and modeling of zero or minimal induced grid emissions. Further, the Project Team is seeking confirmation that the carbon intensity (CI) scores of these resources shall accordingly be included in the baseline grid CI for GREET model evaluation.*
- b. *Allowance for annual matching for clean hydrogen facilities that begin construction before 2030; and shift to monthly time matching for facilities that begin construction in or after 2030; and grandfather the matching rules for projects that begin construction before 2030 for the life of the tax credit claiming period.*
- c. *Ensure the location of a generation source and the location of a hydrogen production facility is based on the U.S. Balancing Authority to which it is electrically interconnected (not its geographic location), and where there is a discrepancy between the NTNS region and Balancing Authority, the Balancing Authority should prevail.*
- d. *The proposed Prairie Horizon Project is in a voluntary Green-e REC market. As part of a market study to assess potential REC pricing impact driven by the Incrementality standard as proposed, the Project Team performed an analysis of all publicly announced H₂ projects in voluntary REC market states to calculate the incremental voluntary renewables power demand and the influence on voluntary REC price². The results of the study concluded that with no policy change, H₂ projects seeking the top tier production tax credit would see the price of Green-e RECs increase by approximately 5% in 2025, 59% in 2027, and 165% in 2029, relative to base-case proprietary price*

² H₂ project data gathered by Orennia. Pricing data from Green REC supply & demand, and price regression model owned by TC Energy.

forecast values. Enabling this resource scarcity and pricing trajectory is in direct conflict with the DOE's Energy Earthshots Initiative to reduce the cost of clean hydrogen by 80% to \$1 per kilogram in one decade.

Methane Reformation – Based H₂

On Limiting Eligibility of Methane Sources:

- a) *The proposed regulation inquires on whether to limit eligibility of methane sources to avoid additional production of waste. Proposed concepts include defining a certain date or waste or waste streams that were produced before a certain date, such as the date that the Inflation Reduction Act was enacted. The Project Team views this as a harmful concept, not only because it would artificially constrain the organically growing RNG market, an important, and technologically sound method of finding beneficial use for biogas and fugitive emissions, but because the available RNG today is insufficient to serve the anticipated demand generated from current planned blue H₂ projects.*
- b) *Requiring petition to the Secretary for provisional emissions rate (PER) for RNG feedstock derived from non-landfill sources would stifle beneficial development of alternate RNG feedstocks that currently make up approximately 30% of the North American RNG production, such as from food and animal waste³. A streamlined and predictable pathway for establishing PER for less prevalent feedstock, such as biogas derived from renewable diesel and/or sustainable aviation fuel production, would align the new hydrogen economy with existing industry in a way that optimizes available resources. Without confidence on EAC availability, and associated carbon intensity measurement, blue H₂ projects will be challenged to achieve meaningful Production Tax Credit tiers and cast doubt on ability to achieve the DOE's Energy Earthshot Initiative to reduce the cost of clean hydrogen by 80% to \$1 per kilogram in one decade.*
- c) *Additionally, to assist in project sanctioning and predictable performance, the Project Team requests that taxpayers be permitted to elect to use the 45VH2-GREET model and associated feedstock CI measurements in place at the start of construction of the project throughout the duration of the credit period unless the facility undertakes a material change in operations that may affect the emissions rate.*

On Deliverability for RNG-derived EAC H₂:

- a) *As experienced development partners of RNG projects and traders of EAC derived from RNG facilities, including domestic and international book-and-claim deals, the Project Team understands the importance of a broad sourcing footprint to identify interested parties for EAC offtake which are critical to RNG project financing. Limiting source facility pairing to a region akin to those defined for electricity EAC would harm progress on RNG development and limit access to credits for blue H₂ production facilities.*
- b) *Allowance of a flexible book-and-claim accounting system will be critical for efficient access to the geographically dispersed RNG production footprint. Due to the disparity between production volume by facility and consumption from a single blue H₂ project, paired with the need for H₂ projects to locate near end use (commonly industrial), there is typically a mismatch between optimal locations for hydrogen projects and proximate availability of negative carbon intensity feedstock for RNG production. For example, there are only 3,000 dairy cows in the surrounding counties of the Prairie Horizon hydrogen project with an estimated production capacity of only*

³ Private market study consolidating publicly available databases of RNG projects. Includes only pipeline-injected RNG.

0.17 MMscf/day, fulfilling only approximately 6% of the potential plant demand to achieve the top tier production tax credit⁴.

In addition to geographic dispersion, RNG deals are often structured “as-generated” with a quarterly or annual volume minimum. The Project Team’s experience in RNG sale aligns with this structure. Large utilities abide by annual minimum volumes given the nature of RNG production and deliverability and are measured using a mass balance approach to measuring deliverability and tracking chain-of-custody. The vast storage assets present in existing U.S. natural gas pipeline infrastructure balance the production cycles of RNG, and lend credibility to the use of a book-and-claim system paired with mass balance accounting for procurement. Such a system is currently employed by the Environmental Protection Agency’s Renewable Fuel Standard, and in Low Carbon Fuel Standards across the Country, and in Canada.

On Incrementality for RNG-derived EAC H₂:

- a) *RNG supply at end of 2023 was estimated at 570 MMscf/day across US and Canada⁵. This supply of RNG would be disqualified for use in H₂ production given the proposed first use match requirement.*
- b) *Depending on ultimate project scale and target 45V credit tier, blue H₂ projects could be seeking EAC-correlated volumes on the order of 10 MMscf/day for just one facility to reach the highest tier PTC, with many aiming for similar late-decade commercial operations dates. If limited to landfill sources, this would require most states to more than double existing production capacity (only 12 states currently produce over 10 MMscf/day in pipeline-connected RNG production from landfill production).*
- c) *Current available project tracking data indicates new RNG projects and associated volumes would be inadequate to accommodate first use match criteria if implemented. Incorporation of a deliverability standard with restrictions on regional credit sourcing would further exacerbate the product shortage and would increase cost accordingly.*
- d) *From a business development timeline standpoint, hydrogen production plants take much longer to develop and reach a start to construction (~3-4 years) than renewable natural gas facilities (~2 years). This mismatch means securing new low carbon intensity feedstock necessary for hydrogen production cannot happen until midway through the development of a H₂ project, which is a long period of development to be performed at risk. If a strict Incrementality and “first use” requirement is put in place, H₂ project developers would be forced to bear undue development risk for feedstock, and RNG developments would be incented to commit their gas to other offtake or simply not execute on their projects.*

In conclusion, without a readily achievable and reliable framework for regulations governing the Inflation Reduction Act’s Section 45V Clean Hydrogen Production Credit, the risk for investment in projects seeking to qualify will be great, and in some cases, insurmountable. The Project Team requests consideration of an approach as outlined above that meets the commercial market where it currently stands, to enable a rapid clean H₂ market liftoff with an ultimate goal of the DOE’s Earthshot Initiative to reduce the cost of clean hydrogen by 80% to \$1 per kilogram in one decade.

⁴ USDA National Agricultural Statistics Service May 9, 2022

⁵ Private market study consolidating publicly available databases of RNG projects. Includes only pipeline-injected RNG.

Prairie Horizon Energy Solutions LLC and its partners appreciate the opportunity to comment and look forward to clarified guidance.

Sincerely,

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TC Energy has over 70 years of experience and is a leader in the responsible development and reliable operation of North American energy infrastructure, including NG pipelines (57,900 miles, 25% of North American NG pipelines), liquid pipelines (3,000-mile network), power generation (4,200 MW), and gas storage facilities (653 Bcf). Today, our 7,000+ energy problem solvers are taking action to make energy more sustainable and more secure. We're innovating – including lowering the cost and increasing the speed of H₂ delivery – to reduce emissions from our business and industry. TC Energy's U.S. power and emissions commercial trading and marketing business provides customers with various physical and financial products, with a measured approach to risk management and a focus on financial discipline, compliance, and operational excellence. Additionally, TC Energy has entered into joint development agreements for the development of H₂ hubs across North America.

MPC is a subsidiary of Marathon Petroleum Corporation, a leading integrated downstream energy company headquartered in Findlay, Ohio and operating the nation's largest refining system, including refineries in Mandan, North Dakota, and Saint Paul, Minnesota, as well as a renewable fuels facility in Dickinson, North Dakota. Marathon Petroleum Corporation is also the general partner and majority limited partner of MPLX LP (MPLX), a midstream company that owns and operates gathering, processing, and fractionation assets and crude oil and product logistics infrastructure.